

## CLAIMS

1     1.     A method for routing a first optical beam, the method comprising:  
2             providing a first mirror and a second mirror, both of which are steerable;  
3             providing a second optical beam ;  
4             propagating the first optical beam such that the first optical beam is reflected  
5     by the first mirror prior to being reflected by the second mirror;  
6             propagating the second optical beam such that the second optical beam is  
7     reflected by the second mirror prior to being reflected by the first mirror; and  
8             orienting the first mirror and the second mirror such that the first and second  
9     optical beams are coincident at both the first mirror and the second mirror.

1     2.     The method of claim 1, wherein:  
2             the method additionally comprises:  
3                 detecting a position of the first optical beam on each of the mirrors;  
4                 detecting a position of the second optical beam on each of the mirrors;  
5     and  
6             in orienting the first mirror and the second mirror, the mirrors are oriented in  
7     response to the positions detected.

1     3.     The method of claim 2, wherein, in orienting the first mirror and the second  
2     mirror, the first and second optical beams are positioned to be coincident at centered  
3     positions of the mirrors.

1     4.     The method of claim 2, wherein:  
2             each of the first and the second mirrors comprises a partially-reflective surface  
3     and a photodetector, the partially-reflective surface being operable to reflect a portion  
4     of light incident thereon and to pass through the remainder of the light to the  
5     photodetector; and  
6             detecting positions of the first and second optical beams is accomplished using  
7     the photodetectors.

1     5.     The method of claim 1, wherein:  
2             the method additionally comprises:  
3                 providing a first fixed mirror; and  
4             in propagating the first optical beam, the first optical beam is reflected by the  
5     first fixed mirror prior to being reflected by the first steerable mirror.

1     6.     The method of claim 5, wherein:  
2             the method additionally comprises:  
3                 providing a second fixed mirror; and  
4             in propagating the second optical beam, the second optical beam is reflected  
5     by the second fixed mirror prior to being reflected by the second steerable mirror.

1     7.     The method of claim 1, wherein the first optical beam and the second optical  
2     beam differ in wavelength.

1     8.     The method of claim 1, wherein the first optical beam is modulated at a first  
2     frequency and the second optical is modulated at a second frequency that is different  
3     than the first frequency.

1     9.     The method of claim 1, wherein the first optical beam carries an information  
2     signal.

1     10.    A system for routing a first optical beam, the system comprising:  
2         a first steerable mirror;  
3         a second steerable mirror located to communicate optically with the first  
4     steerable mirror; and  
5         a controller operable in response to information indicating respective positions  
6     of incidence of first and second optical beams on each of the first and second steerable  
7     mirrors and to provide control signals to orient the first and second steerable mirrors  
8     to locate the first and second optical beams coincidentally at both the first and second  
9     steerable mirrors.

1     11.    The system of claim 10, wherein the controller is operable to locate the first  
2     and second optical beams coincidentally at centered positions of the first and second  
3     steerable mirrors.

1    12.    The system of claim 10, wherein:  
2            each of the first and second steerable mirrors comprises a partially-reflective  
3    surface and a photodetector, each partially-reflective surface being operable to reflect  
4    a portion of light incident thereon and to pass the remainder of the light to the  
5    photodetector, each photodetector being operable to provide information  
6    corresponding to the respective positions of the first and second optical beams to the  
7    controller.

1    13.    The system of claim 12, wherein:  
2            the first steerable mirror comprises a rotatable micromirror and a set of  
3    electrodes;  
4            the set of electrodes is electrically connected to receive the control signals  
5    from the controller.

1    14.    The system of claim 10, further comprising:  
2            a first fixed mirror optically communicating with the first steerable mirror, the  
3    first fixed mirror being located such that the first optical beam is reflected by the first  
4    fixed mirror prior to being reflected by the first steerable mirror.

1    15.    The system of claim 14, further comprising:  
2            a second fixed mirror optically communicating with the second steerable  
3    mirror, the second fixed mirror being located such that the second optical beam is  
4    reflected by the second fixed mirror prior to being reflected by the second steerable  
5    mirror.

1    16.    The system of claim 15, wherein:  
 2            each of the first and second fixed mirrors comprises a partially-reflective  
 3    surface and a photodetector, each partially-reflective surface being operable to reflect  
 4    a portion of light incident thereon and to pass the remainder of the light to the  
 5    photodetector, each photodetector being operable to provide information  
 6    corresponding to the respective positions of the first and second optical beams to the  
 7    controller.

1    17.    The system of claim 10, further comprising:  
 1            a first modulator operable to modulate the first optical beam at a first  
 2    frequency; and  
 3            a second modulator operable to modulate the second optical beam at a second  
 4    frequency that is different than the first frequency.

1    18.    The system of claim 10, further comprising:  
 2            an optical combiner located to receive the first optical beam and an  
 3    information beam, the optical combiner being operable to combine the first optical  
 4    beam and the information beam optically such that the first optical beam carries the  
 5    information beam.

1    19.    The system of claim 10, further comprising:  
 2            means for optically combining the first optical beam and an information beam  
 3    such that the first optical beam carries the information beam.